9. PLACE: MOBILITY

TOWN OF AMHERST
EXISTING CONDITIONS

OVERVIEW

This document provides information on transportation and circulation trends and conditions. A variety of sources were used in the preparation of this document including the U.S. Census, MassHighway, Pioneer Valley Regional Planning Commission, and several departments of the Town of Amherst. After this overview section, the document is organized into the following sections:

- **Key Findings** – The key findings represent a summary of important conclusions drawn by the consulting team based on research and discussions with the CPC and Town Staff.
- **Detailed Information** – This section includes the background documentation for the key findings. It is divided into 15 parts:
  A. Local Commuting Patterns
  B. Regional Highway Network Trends and Comparisons
  C. Local Highway Inventory and Trends
  D. Functional Highway Classification
  E. Local Roadway Surfaces
  F. Traffic Volumes and Circulation
  G. Bridges
  H. Roadway Safety
  I. Intersections of Concern

Note: The maps in this chapter are not to scale. They have been adjusted to fit the format and page size and of this document.

J. Existing and Proposed Roadway Improvements
K. Transit and Ridesharing Services
L. Bicycle Transportation
M. Sidewalks & Pedestrian Accessways
N. Trails & Paths
O. Transportation Policy and Regulation
P. Key Future Transportation Issues

KEY FINDINGS

1. The Town of Amherst has an extensive and comprehensive series of transportation modes including roadways, public transit, rail, private transport services, sidewalks, multi-use trails, nature trail, bike lanes, and rideshare programs. Amherst has the 3rd highest public roadway mileage in the region with 98 and the highest population density per mile (344 persons/mile). This is indicative of the community's compact nature with a higher density, mixed-use core surrounded by rural lands.
2. Amherst has an extensive network of alternative transportation modes include approximately 44 miles of sidewalks, 13 miles of bike lanes, and 50 miles of trails.
3. There are a total of approximately 144 miles of roadway in Amherst of which 7% are state owned and maintained, 68% are Town owned and maintained, 11.5% are owned by local institutions, and 18% are unaccepted roadways.
4. Amherst has a total of 398 roads given a functional classification by the state. The vast majority (341 or 86%) are classified as Local Roads.
5. According to non-permanent recorders, Northampton Road has the highest average daily traffic volume (ADT) in Amherst with 22,000 to 23,000 vehicles per day. Also experiencing large volumes are Massachusetts Avenue (10,000 ADT), and Route 116 (11,000 ADT), East Pleasant Street (7,200 ADT) and Meadow Street (7,600 ADT).
6. The total number of accidents in 2006 was 697 of which 123 were injury accidents. The number of injury accidents has declined steadily since 2002. However, the total number of accidents has fluctuated between 1007 (2003) and 697 (2006). The most accident prone streets in Town are along Route 9 (including Northampton Road, College Street, and Belchertown Road making up 52% of al injury accidents), and Amity Street.
7. Some of Amherst's major roadways have generally showed a decline in traffic volume over the past five years. Northampton Road decreased by over 6,000 ADT (21%) between 2000 and 2004, and Meadow Street and Route 116 also showed significant decreases. Only East Pleasant Street (north of Eastman Lane) has shown a large increase in daily traffic volumes since 2000.
8. A total of 68% of employed Amherst residents have jobs within Town. While commuting patterns increased during the 1990s, workers finding

employment outside Amherst have the shortest commuting time in the region. The most common commuting places in 1990 and 2000 were Northampton, Hadley and Springfield.

9. Amherst and the region have an extensive transit service and ridesharing program. The Pioneer Valley Transit Authority (PVTA) provides the primary fixed route bus and para-transit services for Hampshire and Hampden Counties.
10. Amherst has an extensive network of sidewalks, bicycle lanes and pathways, and nature trails. Walking, hiking and biking are an integral part of community life and a primary alternative transportation resource.
11. Transportation regulations and policies in the zoning, site plan and subdivision regulations have been recently amended, and generally provide for new transportation infrastructure design and construction that is consistent with the community's scale and character.
12. Some key future mobility issues for the community are emergency response time, projected increase in traffic volumes and circulation changes related to potential future development in rural areas of Town, expansion of alternative modes of transportation to the automobile, and securing funding sources for desired transportation improvement projects.

DETAILED INFORMATION

The following section includes more detailed explanations and supporting data for the Key Findings listed above.

Local Commuting Patterns

Approximately 32% of working residents travel outside of Amherst for employment purposes. Although this percentage does not appear as significant, it is a 3.7 % increase from 1990. The percentage of residents working in Amherst has decreased from 72.2% in the year 1990 to 66.2% in the year 2000.

On average, the Amherst commuter is traveling 18 minutes to work, a 3.4 minute increase from the mean traveling time in 1990. However, Amherst has the shortest average commute time in the region, noticeably less than the regional average commute time of 27 minutes.

The number of commuters working outside Amherst but finding employment in other municipalities within Hampshire County increased from 41% to 53% during the 1990s. In both 1990 and 2000, the most common places to work for commuting residents were Northampton (21% in 2000), Hadley and Springfield.

The 1990-2000 commuting patterns show that approximately half of working Amherst residents relied on their automobiles to travel to work (6.8% increase from 1990 to 2000). While a relatively large percentage travel by means of bicycle or foot (26.1%), this figure has decrease from 31.4% in 1990 as more residents seek employment out of the community.

However, the number of residents carpooling and working at home also increased during the 1990s.

According to the 2000 Census, about 9% of Amherst households are transit-dependent and do not have access to a private vehicle. Additionally, about 20% of elderly households (headed by someone 65 or over) do not have access to a private vehicle. Between 1990 and 2000, the number of elderly households without access to a car increased by 41%. This is a key trend because these households are most likely to be transit-dependent and/or in need of para-transit services.

Data on Amherst's commuting patterns is included in Table 9.1 below.

TABLE 9.1: AMHERST COMMUTING PATTERNS, 1990-2000

COMMUTING TO WORK	1990	%	2000	%
Workers 16 years and over	17,216	100%	17,851	100%
Worked in Massachusetts	17,216	100.0%	17,446	97.7%
Worked in Amherst	12,429	72.2%	11,817	66.2%
Worked in County but not in Town	2,025	11.8%	2,980	16.7%
Worked Outside Hampshire County	2,762	16.0%	2,649	14.8%
Worked Outside Massachusetts	0	0.0%	405	2.0%
MEANS OF TRANSPORTATION				
Drove Alone	7,891	45.8%	9,395	52.6%
Carpooled	1,148	6.7%	1,313	7.4%
Public Transportation (including taxicab)	1890	11.0%	1,345	7.5%
Bicycle or Walked	5405	31.4%	4,668	26.1%
Motorcycle or other means	85	0.5%	175	1.0%
Worked at Home	797	4.6%	955	5.3%
TRAVEL TIME TO WORK				
Not Working At Home	16,419	95.4%	16,896	94.7%
Less than 5 Minutes	1771	10.8%	1,389	8.2%
5 to 9 Minutes	3811	23.2%	3,672	21.7%
10 to 14 Minutes	4290	26.1%	3,817	22.6%
15 to 19 Minutes	2429	14.8%	2,500	14.8%
20 to 29 Minutes	1796	10.9%	2,248	13.3%
30 to 44 Minutes	1507	9.2%	1,948	11.5%
45 or More Minutes	815	5.0%	1,322	7.8%
Median Travel Time to Work	14.6		18	

Source: U.S. Census Bureau

Regional Highway Network Trends and Comparisons

The Pioneer Valley Planning Commission (PVPC) assesses transportation issues and needs in the region, including those in the Town of Amherst. Providing safe and reliable roadways throughout the community as well as in the Pioneer Valley is a major goal for PVPC as well as the Amherst community.

Compared with the municipalities in the region, Amherst has the third highest town owned and maintained public road mileage with 98.8 miles (2004). Nearby Belchertown and Northampton have second and first highest town owned public road mileage at 120.5 miles and 150.9 miles, respectively. Amherst has the highest density of persons per mile of road at nearly 345 persons per mile. (This is over 100 persons per mile greater than the town with the second highest density, the Town of South Hadley). This trend is generally indicative of the community's traditional compact nature with a well established downtown, educational institutions, and neighborhoods in the core area surrounding by rural countryside. Effectively, Amherst has relatively few suburban type residential areas that generate more roadway miles. This analysis is further illustrated in Table 9.2 below.

TABLE 9.2: REGIONAL PUBLIC ROADWAY MILEAGE COMPARISON BY MUNICIPALITY

Municipality	2005 Pop.	2000 Housing Units	Land SQ Miles	2004 Public Road Mileage	Persons per Land Sq. Mile	Homes Per Land Sq. Mile	Homes per Road Mile	Persons per Mile of Road	Road Miles per SQ Miles	Median Travel Time to Work (Min.)
Amherst	***34,047***	***9,427***	***27.8***	***98.8***	***1224.7***	***339.1***	***95.5***	***344.7***	***3.6***	***18***
Belchertown	13,958	5,050	55.3	120.5	252.4	91.3	41.9	115.9	2.2	28
Chesterfield	1,272	524	31.3	53.3	40.6	16.7	9.8	23.9	1.7	29
Cumington	988	452	23.1	49.1	42.8	19.6	9.2	20.1	2.1	38
Easthampton	16,004	7,083	13.6	80.2	1176.8	520.8	88.3	199.6	5.9	21
Goshen	957	536	17.7	26.4	54.1	30.3	20.3	36.3	1.5	31
Granby	6,344	2,295	28.1	57.0	225.8	81.7	40.2	111.2	2.0	21
Hadley	4,822	1,953	24.7	67.2	195.2	79.1	29.1	71.8	2.7	22
Hatfield	3,282	1,431	16.8	50.8	195.4	85.2	28.2	64.7	3.0	21
Huntington	2,182	935	26.8	37.1	81.4	34.9	25.2	58.8	1.4	34
Middlefield	549	263	24.2	38.4	22.7	10.9	6.9	14.3	1.6	42
Northampton	28,715	12,405	34.5	150.9	832.3	359.6	82.2	190.4	4.4	20
Pelham	1,416	556	26.5	22.8	53.4	21.0	24.4	62.1	0.9	22
Plainfield	600	311	21.3	47.9	28.2	14.6	6.5	12.5	2.2	34
South Hadley	17,063	6,784	18.5	84.1	922.3	366.7	80.6	202.8	4.5	19
Southampton	5,841	2,025	28.9	66.5	202.1	70.1	30.5	87.9	2.3	25
Ware	10,005	4,336	40.0	84.7	250.1	108.4	51.2	118.1	2.1	26
Westhampton	1,568	623	27.3	44.0	57.4	22.8	14.1	35.6	1.6	25
Williamsburg	2,434	1,073	25.7	41.8	94.7	41.8	25.7	58.2	1.6	23
Worthington	1,292	582	32.1	58.1	40.2	18.1	10.0	22.2	1.8	41
Region Average	7,667	2,932	27.2	64.0	299.6	116.6	36.0	92.6	2.5	27.0

Source: Massachusetts Department of Revenue

Local Highway Inventory and Trends

The Massachusetts Highway Department (MHD) classification system is divided by administrative/jurisdiction and functional. According to the MHD, the Town of Amherst is comprised of state, town, institutional, and unaccepted jurisdiction roadways totaling approximately 144 miles. A

complete inventory of the roadways type and classification is attached at the end of this report.

The administrative/jurisdiction classification for roadways in the state is defined by the Massachusetts Highway Department (MHD). This classification system identifies the general type and ownership of the roadway for construction and maintenance purposes. This roadway classification is shown in Table 9.3 below.

TABLE 9.3: AMHERST ROADWAYS AS CLASSIFIED BY MASSHIGHWAY

Jurisdiction	Miles	Description
1	10	Mass. Highway Department
2	98	City or Town Accepted Road
0	24.5	Unaccepted by City or Town
B	11.5	State College or University

Jurisdiction 1 - There are seven (7) Jurisdiction 1 (state owned and maintained) roadways in Amherst for a total of 10 miles including:

- Belchertown Road (Route 9)
- South Pleasant Street (Route 116)
- Montague Road (Route 63)
- Sunderland Road (Route 116)
- Northampton Road (Route 9)
- West Street (Route 116)
- Route 116 (northern portion)

Jurisdiction 2 - These roads are Town owned roads as classified by the MHD, totaling 98 miles.

Jurisdiction B - These roads are owned either by the University of Massachusetts, Amherst College, or Hampshire College for a total of 11.5 miles.

Jurisdiction 0 - As classified by the MHD, these roads are unaccepted by the Town for a total of 25.4 miles. These are primarily private access roads that may include unimproved roads that do not meet Town standards or new developments that have selected to maintain their own streets.

See Map 9.1, provided at the end of this chapter, for depiction of roadways and ownership.

Functional Highway Classification

The Town of Amherst's roads are comprised of principal and minor arterial, major and minor collectors, and local roads. There are a total of 398 roads that are given a functional classification by the state. As indicated below, 348 roadways in Town are classified as "Local Roads" with over 88 miles and 62% of all mileage in Amherst. Local roads are also the narrowest at 22 feet on average which is in keeping with the rural character of the community.

A full inventory of local roadways and functional classification are attached to this report under Table D. Map 9.2, located at the end of this chapter, depicts the roadway classification.

TABLE 9.4. SUMMARY OF AMHERST ROADWAYS BY FUNCTIONAL CLASSIFICATION

Functional Classification	Mileage	Number of Roadway	Average Surface Width (ft)	Percentage Mileage by Class
Local Roads	88.01	348	22	62%
Major Collector	29.81	26	26	21%
Minor Arterial	13.28	8	30	9%
Minor Collector	5.45	12	24	4%
Principal Arterial	6.33	4	26	4%
Total	142.88	398	25.6	100%

Source: Mass. Highway Department and Amherst GIS Road Inventory

Principal Arterial- Principal arterials are roadways suitable for statewide or interstate travel, with the capacity for movements between urban areas with populations over 50,000. Three roadways in Amherst are classified as principal arterial roads by the MHD. These roadways include Belchertown Road, Northampton Road, and College Street.

Minor Arterial- Minor arterial roads link larger towns that are capable of attracting travel over long distances. These roads tend to have greater densities. A total of 13 roads are classified as minor arterial by the MHD. A few examples of these roadways include East Pleasant Street, Montague Road, Route 116, Sunderland Road, West Street, etc.

Major Collector- Major collectors serve travel for county seats not on arterial routes, and connect to routes with higher classification. There are 30 major collector roads in Amherst (Amity Street, Main Street, and West Bay Road are some of the primary examples).

Minor Collector- Minor collects are spaced at intervals consistent with population density to accumulate traffic from local roads and bring within reasonable distance of collector roads. The MHD classifies 11 roads in Amherst as minor collectors (Eastman Lane, Fearing Street, and Pomeroy Road are some primary examples).

Local Roads- Local roads provide travel over relatively short distances and adjacent to the collector network. There are 341 roads in Amherst classified as local.

Local Roadway Surfaces

Of the 98 miles of Town owned roadway, only 0.13 miles is unpaved (Baker Street). Annually, the Amherst Department of Public Works (DPW) develops a Pavement Management Plan for the future five years. Each roadway's condition is assessed based on a list of criteria including number

of pot holes, cracks, pavement quality, etc. The process results in an Overall Condition Index (OCI) number assigned to each roadway.

Roadways with an OCI less than 70 are prioritized based on usage of road, overall condition, and cost. The DPW selects 4 to 5 roads to be improved each year during the five year plan based on the department's available budget. It is important to DPW, as well as the community, that roadways be maintained while they are in good conditions, rather than reaching a level of deterioration at which point the roadway become increasingly expense to repair or reconstruct. Table 9.5 below lists the current mileage of Town accepted roadway surfaces.

TABLE 9.5: TOWN ACCEPTED ROADWAY SURFACES

Surface Type	Miles
Surface Treated	26.78
Bituminous Concrete	71.13
Unimproved, earth graded	0.13

Source: Mass. Highway Department GIS Road Inventory

Traffic Volumes and Circulation

Average Daily Volume - The State Wide Traffic Data Collection section of the MHD conducts annual traffic counts in Amherst using automatic traffic recorders. They are compiled into four categories:

- Continuous Counts – Counted hourly every day of the year;
- Coverage Counts – Counted for a 48-hour duration repeated once every three years;
- Classification Counts – Counted for a 48-hour duration; and
- Special Counts –Counted for pavement, highway and bridge project design efforts.

The Pioneer Valley Planning Commission (PVPC) has a contract with the MHD to provide the traffic counts performed at specific locations in their region. There are twelve permanent monitoring stations maintained by the MHD in the Pioneer Valley Region. Of the twelve, there are two stations located in Northampton, which are the closest locations to the Town of Amherst (shown in Table 9.6). According to these permanent stations, the traffic volume increases in the region do not appear to be significant.

TABLE 9.6: AMHERST AREA TRAFFIC VOLUMES			
Route/Street	**Year**	**Traffic Volume**	**% Δ in 1999-2005**
RTE. 10& 5 (Northampton)	1999	10,765	5%
	2000	11,661	
	2001	11,397	
	2002	11,284	
	2003	11,208	
	2004	11,255	
	2005	11,304	
RTE. I-91 (North of King St. Interchange)	1999	34,926	8%
	2000	36,140	
	2001	-	
	2002	38,245	
	2003	37,614	
	2004	38,048	
	2005	-	

Source: Massachusetts Highway Department

Non-permanent traffic volume counts have been performed throughout the Town of Amherst at critical locations. The data is summarized in Table 9.7:

TABLE 9.7: AVG. ANNUAL TRAFFIC VOLUMES FROM NON-PERMANENT RECORDERS 2000-2005							
Traffic Count Location	**STA.**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**
Amity St. (west of Lincoln Ave)	2112		8,000		8,400		8,300
E. Pleasant St. (North of Eastman Ln.)	2122	7,100	7,100	7,100	7,200	7,200	8,200
Mass. Ave. (west of N. Pleasant St.)	2114		11,300		12,100		9,800
Meadow St. (east of Rte. 116)	2810		8,800			7,600	
Northampton Rd. (Rte. 9)	2103	28,800			22,500	22,643	
Rte. 116 (south of Rte. 9)	2108		12,800			11,000	
South East St. (south of Shays St.)	2099	2,400		2,800		2,700	
Strong St. (East of E. Pleasant St.)	2109		4,100		3,600		4,000

Source: Massachusetts Highway Department

According to non-permanent recorders, Northampton Road, a principal arterial road, experiences the most traffic with an average daily traffic volume (ADT) of 22,000 to 23,000 vehicles per day. Also experiencing large volumes are Massachusetts Avenue with an ADT of approximately 10,000, and Rte 116 with an ADT of 11,000. Both roads are classified as minor arterial. Major collector streets East Pleasant Street and Meadow Street also experience substantial ADT volumes of 7,200 and 7,600, respectively.

Unlike many communities in Massachusetts, Amherst's major roadways have generally showing a decline in traffic volume over the past five years. The busiest road in Town, Northampton Road, declined by over 6,000 ADT

(21%) between 2000 and 2004. Meadow Street and Route 116 also showed significant declines in daily traffic volumes during this period. Only East Pleasant Street (north of Eastman Lane) has shown a large increase in daily traffic volumes since 2000.

Bridges

There are a total of 15 bridges within Amherst, 6 that are owned by the state and 9 owned by the Town. The state-owned bridges are maintained by the MHD Bridge Inspection Unit, which is responsible for preparing bridge load ratings and performing loading posting to be in compliance with the National Bridge Inspection Standards (NBIS). The Bridge Project Development Unit provides a comprehensive and schematic review of the bridge conditions utilizing the Bridge Inspection Reports. The type of work required for each work is prioritized and put into motion. Currently the MHD is in the construction phase of the Meadow Street bridge replacement over Swamp Brook. They are in the design phase of rehabilitation and replacement for the East Leverett Road bridge over Mountain Brook and the Pelham Road bridge over Fort River.

Roadway Safety

The safety of a town's roadway system can be assessed by the existing conditions of the roads and, ultimately, the number of accidents involving vehicles that occurs. Town wide, the total number of accidents that were reported to the Amherst Police Department in the year 2006 was 697. Of the 697 reported, 123 were injury accidents. The number of injury accidents has declined steadily since 2002. However, the total number of accidents has fluctuated between 1007 (2003) and 697 (2006) as summarized in Table 9.8.

TABLE 9.8: TRAFFIC ACCIDENTS REPORTED IN AMHERST, 2000-2006

Type	2002	2003	2004	2005	2006
Injury Accidents	216	183	139	138	123
Fatalities	2	0	0	0	0
OUI	14	28	20	15	27
Pedestrian	10	7	12	5	5
Bicycle	6	6	11	9	7
Hit & Run (personal injury)	1	1	5	2	1
Hit & Run (property damage)	13	77	92	113	85
Total # of Accident Reports	709	1007	826	855	697

Source: Amherst Police Department

In 2006, approximately 52% of the injury related accidents occurred along Route 9 (including Northampton Road, College Street, and Belchertown Road). Since Route 9 is heavily traveled with greater speed limits than the rest of the Town, it is expected that the majority of the accidents would occur on this roadway.

Amity Street is also an accident prone area. In 2006, approximately 15% of the total injury accidents occurred on Amity Street. The speed limit is fairly low and, according to the Police Department, is not the cause of the accident numbers. Amity Street has two congested intersections, one with University Drive and the other with North Pleasant Street in the center of Amherst. The hill on Amity Street as it nears the North Pleasant Street intersection creates negative sight distances that affect the cars entering onto the street from Lincoln Drive.

Overall, the number and severity of traffic accidents in Amherst is relatively in terms of accidents per mile of roadway and population compared with other communities similar in size and character. The Town has taken measures in recent years to improve safety and reduce injuries at high crash locations such as University Drive and on Amity Street. The new traffic calming guidelines for neighborhoods being developed by the DPW should also enhance vehicle, pedestrian, and bicycle safety around the community.

Intersections of Concern

The Town has recently completed intersection improvements at the Amherst Common and Atkins Corner (West Bay Street and West Street). Additionally, the Department of Public Works has identified several intersections in need of improvement as listed in Table 9.9:

TABLE 9.9: AMHERST PROBLEM INTERSECTIONS

Intersection	Improvements Recommended
Identified	
Amity St./Lincoln St.	traffic calming, proposed roundabout
Amity St./Pleasant St./Main St.	road realignment
Chestnut St./High St.	traffic calming
Montague Rd/Sunderland Rd/Meadow St/N. Pleasant St.	road alignment, suggest road about
Pomeroy Lane/West St.	intersection redesign
Strong St./East Pleasant St.	possible traffic light under discussion
Atkins Corner	intersection redesign
East Pleasant St./Pine St.	intersection redesign
Completed	
Amherst College	traffic calming methods, raised crosswalks
W. Bay Road/West St. (Atkins Corner)	road alignment (2 roundabouts) traffic lights
South Amherst Common	Evaluate traffic pattern issues and determine signage issues

Source: Interview with Amherst DPW

Specific areas where the sidewalk network should be improved include: South East Street (Colonial Village to College Street), East Pleasant Street (Village Park to Eastman Lane), East Hadley Road (South Pleasant Street to Columbia Drive), and Old Farm Road (Cross Brook to Pine Grove).

In terms of bicycle safety improvements several improvements were recommended as part of the *Planning Amherst Together* process are listed below:

TABLE 9.10: PUBLIC INPUT ON BICYCLE SAFETY CONCERNS

Amherst Center	The bike path connection to the downtown area is incomplete and should be enhanced
Atkins Corner/Hampshire College	Currently no shoulder and difficult to maneuver on bike. Intersection reconfiguration should include bike lanes.
Mill River Recreation Area/Puffer Pond	Pulpit Hill to Sand Hill section should be improved to include bike lanes and possibly a bike path.
North Amherst	The intersection is difficult to navigate on bike with high speeds and turning movements.
Cushman Village	Bridge Street and Pine Street intersection is a difficult to maneuver on bike. Bike lanes are needed.

Source: Planning Amherst Together

Existing and Proposed Roadway Improvements

The Amherst DPW assesses the roadways annually using the Pavement Management Program described above. Roadwork that was been completed in the years 2004-2005 are listed in Table 9.11:

TABLE 9.11: ROADWAY RESURFACING RECENTLY COMPLETED BY AMHERST DPW

Road	Start	End	Work Done	Length (ft)	Width (ft)
South East St.	Colonial Village	South Amherst Common	Reclaimed 3"	9565	25
Main St.	Pelham Rd.	South East St.	Reclaimed 3"	1400	25
South Pleasant St.	College St.	Snell St.	Reclaimed 3"	1900	30
Applewood Ln.	Entire		Reclaimed 3"	638	26
Ramins Cir.	Entire		Reclaimed 3"	415	25
Fearing St.	Entire		Reclaimed 3"	2406	26
North Pleasant St.	Presidential Apts	Pine St.	Reclaimed 3"	3000	31
E. Pleasant St.	Strong St.	Tilson Farms	Reclaimed 3"	3800	32
East Hadley Rd.	Town Line	Whippletree ln.	Reclaimed 3"	1500	30
Old Farm Rd.	Rt. 9	Wildflower Dr.	Overlay 2"	4850	28

Source: Amherst Annual Town Reports

In addition to locally funded projects, Amherst has two larger roadway projects included in the regional Transportation Improvement Program (TIP). The Pioneer Valley Metropolitan Planning Organization (MPO) prepares the TIP annually, identifying a five-year schedule of projects by location with cost and funding sources. The projects are prioritized to determine the construction year. The 2007 TIP includes the following projects for Amherst shown in Table 9.12.

TABLE 9.12: REGIONAL TIP PROJECTS FOR AMHERST, 2007				
Year	Project Description	Federal Funds	States Funds	Total
2008	Rte 116 Reconstruction and Alignment	$2,208,832	$552,208	$2,761,040
2009	Rte 116 Reconstruction and Alignment	$556,800	$139,200	$696,000

Source: Transportation Improvement Plan, PVRPC

Transit and Ridesharing Services

Pioneer Valley Transit Authority (PVTA) – The Town of Amherst is served with excellent transit service from a number of local and regional providers. The PVTA is the primary transit authority for the region and is broken down into three subdistricts: northern, southern, and eastern. Amherst, along with Easthampton, Hadley, Leverett, Northampton, Pelham, Sunderland and Williamsburg, compose the northern region.

PVTA operates 12 full time routes in Amherst connecting to various places around the community and throughout the region. Additionally, the Franklin Regional Transit Authority (FRTA) operates a regular route between Amherst Center and downtown Greenfield (through Turners Falls and Millers Falls) for commuters to UMass.

TABLE 9.13: AMHERST AREA TRANSIT SERVICE ROUTES		
Provider	Route	Description
PVTA	30	North Amherst/Old Belchertown Road
PVTA	31	Sunderland/South Amherst
PVTA	32	Puffer's Pond/Adkins Corner
PVTA	34	Orchard Hill/Mullins Center Campus Shuttle (Northbound)
PVTA	35	Orchard Hill/Mullins Center Campus Shuttle (Southbound)
PVTA	37	Amity Shuttle
PVTA	38	Mt. Holyoke - Hampshire - Amherst - Umass
PVTA	39	Smith - Hampshire - Mt. Holyoke
PVTA	M40	Minuteman Express - Northampton/Amherst
PVTA	B43	Northampton/Hadley/Amherst
PVTA	45	Belchertown Center/Umass
PVTA	46	South Deerfield//Umass
FRTA	NA	Amherst - Greenfield Bus Route
Source: Pioneer Valley Transit Authority		

Some of the key regional PVTA routes are the B40 and Minuteman Express which provide direct commuter service between Umass and Smith College, and the B43 bus between Amherst and Northampton. While most towns in the region have fixed route service, this is not available in Pelham and Leverett. Map 9.3 attached at the end of the chapter displays the PVTA routes.

As of the summer of 2007, the general bus fair was $1 per ride with a daily unlimited pass for $3 and a weekly unlimited pass for $7. A regular month pass is $36 and seniors are $18. Children 5 and under ride for free.

Additionally, no fee is required for any riders affiliated with the Five Colleges. However, Five College students contribute to the cost of the bus services through student fees.

To accommodate bicyclists, bike racks are installed on the UMass Transit, PVTA (Northern Tier), and FRTA buses. These racks are left on the buses year round.

Outreach Transit Routes – Supplemental town-supported transit routes are provided by UMass Transit. Additionally, PVTA has a contract with the University of Massachusetts Transit Service that provides a fixed route service. UMass Transit provides service on campus and to the surrounding Five College Area (Amherst College, Hampshire College, Mount Holyoke and Smith College) with a fleet of 40 full size buses.

Para -Transit - The PVTA also provides a door-to-door accessible van service to 22 member communities located in Hampden and Hampshire County and two members in Franklin County. Para-transit service is divided into the following six tiers: northern, central, eastern, southern, western, and Springfield. Amherst is in the northern tier along with Easthampton, Hadley, Leverett, Northampton, Pelham, Sunderland and Williamsburg.

The purpose of the para-transit is to provide service to disabled passengers who are unable to access the bus system. Para-transit services are in keeping with the Americans with Disabilities Act (ADA) requirements for transit access for disabled riders. Under these requirements service must be provided within ¾ mile of a fixed route during the same hours of operation and available to persons unable to use the fixed route system. Also interconnected is Dial-A-Ride van service for individuals over the age of 60. This service is not mandated but provided as the budget allows. All PVTA buses are wheelchair accessible.

Private Bus Carriers - In 1984, a bus terminal in close proximity to Amherst opened in Northampton, operated by Peter Pan and Vermont Transit. Peter Pan bus stops in Amherst are located at the UMass Fine Arts Center and Amherst Center. The Peter Pan bus lines provide travel from Amherst to Boston and New York City via the Springfield Bus Terminal. Peter Pan also provides service west to Albany and north to Greenfield, with additional Vermont Transit service through Amherst to points north. Peter Pan also connects to the Greyhound network of bus lines. The Springfield Bus Terminal, established in 1969, provides service by Peter Pan, Greyhound, Vermont Transit and Bonanza Bus lines, and is the major bus station in Western Massachusetts. While the Amherst Peter Pan Ticket office has closed, tickets can still be purchased at Amherst Books as well as at the University. An enhanced transit connection between Springfield, Holyoke and Amherst is a regional priority given in the PVPC's recently updated Regional Transportation Plan.

Ridesharing - Ridesharing services are provided by a non-profit organization known as MassRide. In Amherst, the organization focuses its attention on reducing the amount of cars traveling to UMass by employees

and students. Ridesharing services are free to employees and students at the University. Services include a carpool matching service, reduced parking fees, preferred parking spaces, free one-day passes, guaranteed ride home, and information on alternative commuter options. Currently, there is one park-and-ride lot located in Amherst at the Big Y located on Route 9.

Rail – There is no commuter rail service in Amherst. Amtrak service is provided from the train station with connections to Montréal and New York City. According to PVPC, 9,411 people used this service in 2005. There is also rail freight serving Amherst.

In addition to these public transportation services these is also taxi service in Amherst. Stop & Shops "Peapod" internet grocery provides home deliveries to Amherst residents for a fee and a few local restaurants also provide home delivery. Recently, Amherst College has entered an agreement with ZipCar, which includes two hybrid cars available to students for rental. According to the Collage this program has been well utilized and a big success.

Bicycle Transportation

Existing designated bike trails are provided on and off roads throughout the community, as shown in Map 9.4 (attached at the end of this chapter). In total, Amherst has nearly 13 miles of bike lanes as listed in the table below. The locations of bike paths and lanes on major and minor collector roads, and arterial roads are identified in the table below.

9.14: AMHERST BIKE TRAILS AND LANES

Bike Lane or Path	Miles
Amity Street	0.47
E Hadley Rd	1.01
E Pleasant St	2.01
North East Street	0.73
Main Street	0.56
Norwottuck Rail Trail	3.81
Norwottuck Rail Trail Extension	1.15
N & S Pleasant Street	0.97
UMass N Pleasant	0.51
UMass Rail Trail Connector	1.56
Total	**12.77**

Off road shared (bike and pedestrian) paths include the Norwottuck Rail Trail and a path adjacent to UMass Extension. A new connector has also been established between the University Drive bike trail and the Norwottuck trail. The Town of Amherst has proposed additional on and off road bike trails in the following areas:

On-Road

- Continuing existing path on North Pleasant Street to extend along Montague Road;
- Extend existing path on North East Street to Henry Street;
- New path along Lincoln Avenue;
- Along Main Street connecting existing bike paths on Amity Street and Main Street;
- Continuing existing bike path on South Pleasant Street and extending along West Street to Bay Road; and
- New bike path along West Bay and Bay Road.

Off-Road

- Along Route 116 (South Pleasant Street and West Street between Amherst College and Hampshire College);
- Connect local roads to North Pleasant Street and Meadow Street;
- Connect local roads Mill Valley and West Pomeroy Lane; and
- Connect West Street at Granby Town line to Bay Road.

Since proposed on-road bike paths are located on state-owned arterial roads (South Pleasant Street and West Street), the Town will have to work closely with MHD to determine the suitability and best locations for these future bike paths.

In addition to proposed enhancements and expansions to bicycle lanes and paths, infrastructure and safety is an on-going concern. Some common issues are general maintenance, restriping, and double parking in bike lanes downtown. On the Norwottuck Trail, general concerns include flooding caused by beavers, tree roots, and the lack of plowing during the winter months.

Sidewalks & Pedestrian Accessways

Walkways and sidewalks are located throughout Amherst on major roads including sections of Route 9 and West Street (See Map 9.5 provided at the end of this chapter). In total, there are over 44 miles of public sidewalks throughout the community ranging from 3 feet in width on rural roads to 10 feet wide in the downtown area.

TABLE 9.15: AMHERST SIDEWALK INVENTORY*

Width (Ft)	Segments	Length (Ft)	Length (Miles)	Area (Sq Ft)
3	7	4,822	0.91	14,466
4	133	158,771	30.07	635,084
5	49	53,932	10.21	269,660
6	10	12,409	2.35	74,454
7	2	1,300	0.25	9,100
10	2	1,709	0.32	17,090
Totals:		**232,943**	**44.12**	**1,019,854**

Source: Amherst Planning Dept, GIS
** This inventory does not include private sidewalks or sidewalks on local college campuses*

In addition to the inventory listed above, the Town's pavement management system includes data on current sidewalk conditions. Some recent sidewalk and crosswalk projects in town include North Pleasant Street downtown, on College Street (Route 9), on South Pleasant Street near Amherst College (Route 116), and the Jones Library on University Drive.

Extensive sidewalks and cross walks on adjacent public streets and internal roads are located throughout the UMass, Amherst College and Hampshire College campuses for improved student accessibility and safety. Many of these sidewalks also connect to the public sidewalk system in Amherst. Many campus pedestrian access and safety issues have been addressed over the past few years including the crossing at the southwest Dormitory at UMass and crosswalks on North Pleasant Street through UMass.

Trails & Paths

There are hiking trails and pathways scattered throughout Amherst (See Map 9.5). The Amherst Conservation Commission works to provide sufficient trails that serve as alternative transportation, recreation for a variety of skill levels, and connect cultural, social and natural attributes of the Town. Current trails are located throughout the Holyoke Range, beside the Amethyst Brook, and in the Mt. Pollux and Mill River Conservation Areas. Many of these trails connect major roadways such as the trail from Pelham Road to Belchertown Road. The 42-mile Robert Frost Trail and 6-mile KC Trail are other examples. The MMM Trail is a major regional trail that runs through Amherst on the way from Connecticut to Vermont. This trail is under consideration for designation as a national trail in a recently completed draft National Park Service study.

The *2003 Open Space & Recreation Plan* lists several proposed trail locations and suggests improvements that should be made to existing trails. In addition, the PTBC proposed several potential new or enhanced multi-use trails in 2005:

- Hampshire College Path;
- Brickyard Road Path - hardening in one area and RR crossing signs;
- Holt Memorial Trail;
- Puffer and Holt Memorial Trail Extensions;
- Misty Bottom (now Emily Dickenson) Trail – relocation of a segment to Shay's Street; and
- Wildwood to Renaissance Center.

Transportation Policy and Regulation

Transportation related regulations and policies are located in the Town's zoning ordinances, site plan review regulations, subdivision regulations and general ordinances. These regulations have been recently amended and

generally provide for new transportation infrastructure design and construction that is consistent with the community's scale and character. Supplementing these land use regulations are the Town's snow clearance bylaw and the DPW's program to plow high use sidewalks and enforcement of private sidewalk clearance through a small fine after a complaint is registered with the Police Department.

Key Future Transportation Issues

Cumulative Traffic Growth Through Development - Traffic trends in Amherst shows both an increase and decrease in traffic volume for individual roadways. While the overall traffic has declined or maintained steady counts, an increase in traffic volume has occurred on major collector roads South East Street and Amity Street (See Table 9.16).

Future traffic projections and related transportation needs for Amherst are determined by utilizing projected growth of the Town. According to the Institute of Transportation Engineers (ITE) Trip General Manual, the average household generates 10 vehicle trips per day. Using this figure as a base, the 2002 *Amherst Build-Out Analysis & Town Growth Study* (Applied Geographics, Inc. and Philip B. Herr & Associates) projected the number of new dwelling units in Amherst for both a base trend and low trend condition.

TABLE 9.16: CHANGE IN ADT FOR SELECTED AMHERST ROADS, 2000-2005

Traffic Count Location	% Inc.
Amity St. (west of Lincoln Ave)	3.6%
Mass. Ave. (west of N. Pleasant St.)	-15.3%
Meadow St. (east of Rte. 116)	-15.8%
Rte. 116 (south of Rte. 9)	-16.4%
South East St. (south of Shays St.)	11.1%
Strong St. (East of E. Pleasant St.)	-2.5%

Source: Massachusetts Highway Department

The projections were divided into the following categories: downtown, villages, and rural (dispersed). The estimated and projected vehicle traffic volume and circulation patterns based on these categories are shown in Table 9.17.

According to these projections, Amherst's total traffic volume could rise from an estimated 92,246 trips in 2002 to a range of 107,919 to 114,822 in 2010. This projection represents an increase in daily traffic volumes from 17% to 24% within an eight-year period. What is of particular concern is that the high projected increase is in the "dispersed areas," indicating the rural portions of town. Here, daily traffic volumes could rise by 12,000 to 23,000 ADP (or 24% to 47%). This projected rural traffic increase indicates the potential for greater suburban development over the next few years as property in the downtown and village areas become scarcer. The potential

impact on the Town is to require greater infrastructure demands such as roadway improvements and reconstruction that generally serve as smaller number of persons per linear mile.

TABLE 9.17: ESTIMATED AND PROJECTED VEHICLE TRAFFIC & CIRCULATION IN AMHERST, 2010

Category	Downtown	Villages	Rural	Total
Total Housing Units, 1990				8,477
Total Housing Units, 2000	2300*	2200*	4900*	9,427
Year-Round Homes, 2000	2300*	2200*	4900*	9,174
Seasonal or Vacant, 2000				253
Annual Growth 1990-2000				11%
Total Interior Road Mileage				144.9
MHD	-	-	-	10.0
Town	-	-	-	98.0
Institutional	-	-	-	11.5
Private	-	-	-	25.4
Estimated Current Daily Trips	23,000	22,000	49,000	92,246
Projected Housing Growth				
2010 Low Estimate (%)	17%	9%	24%	17%
2010 High Estimate (%)	17%	9%	47%	24%
Projected Daily Vehicle Trips				
2010 Low Estimate	27,000	24,000	61,000	107,919
2010 High Estimate	27,000	24,000	72,000	114,822

Source: US Census, 202 Build Out Analysis & Future Growth Study, ITE Trip General Manual

** as predicted by the 2002 Build Out Analysis & Future Growth Study*

Scenic Roads – There are approximately 31 miles designated as scenic roads in Amherst. This is an important community resource and provides the framework for the rural areas of the Amherst. Protection of these scenic roads is an important issue for Amherst.

Emergency Response and Access - According to Amherst Fire Chief, there are many streets in Amherst that are not favorable to emergency response. A great deal of the problem is due to the shape of the Town that does not allow easy east to west travel.

Traveling on North Pleasant Street through the UMass campus is very slow, and poor road conditions exist on Massachusetts Avenue. A secondary route through the UMass campus is along Lincoln Avenue and Fearing Street. Suggested changes have included blocking the road with jersey barriers or one-way travel to reduce neighborhood traffic. However, the specific impacts of these methods and other alternatives need to be evaluated in terms of their impact on emergency services.

One particular area of concern in southern Amherst is Route 9 through Amherst College due to speed bumps constructed at crosswalks. In addition to these traffic calming measures at the college and on South Pleasant Street, the train crossing on Main Street is an occasional impediment. This route is

avoided due to broken fire apparatus equipment and the inability to transport patients.

South Pleasant Street through Amherst College is the major route of travel from the Central Fire Station to reach the southern part of Amherst. A recent road re-design placed a granite curb along the center line of the road. This inhibits the fire trucks from passing cars while traveling down this road in an emergency.

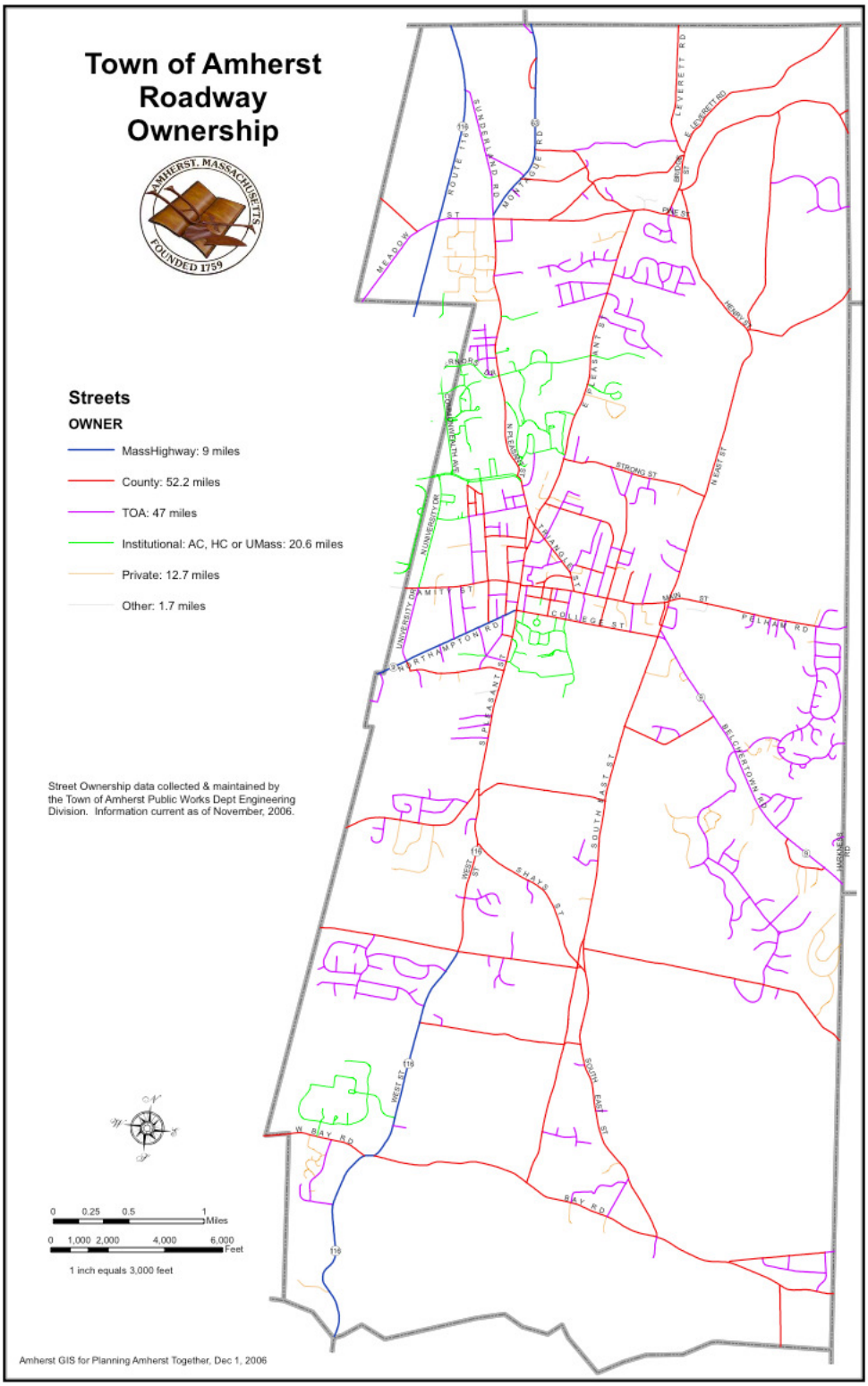
South East Street from the South Amherst Common to Bay Road is a main route to the southeastern corner of Amherst for the fire station. This road is bumpy and curvy, not allowing sufficient speed to be attained for emergency apparatus. It usually takes 13 minutes for the fire apparatus to reach this end of Town.

The Amherst Fire Department realizes the problem present with the emergency response routes. A study has been conducted by Caolo & Bieniek Associates, Inc. to assess the location of a new fire station to decrease the emergency response time.

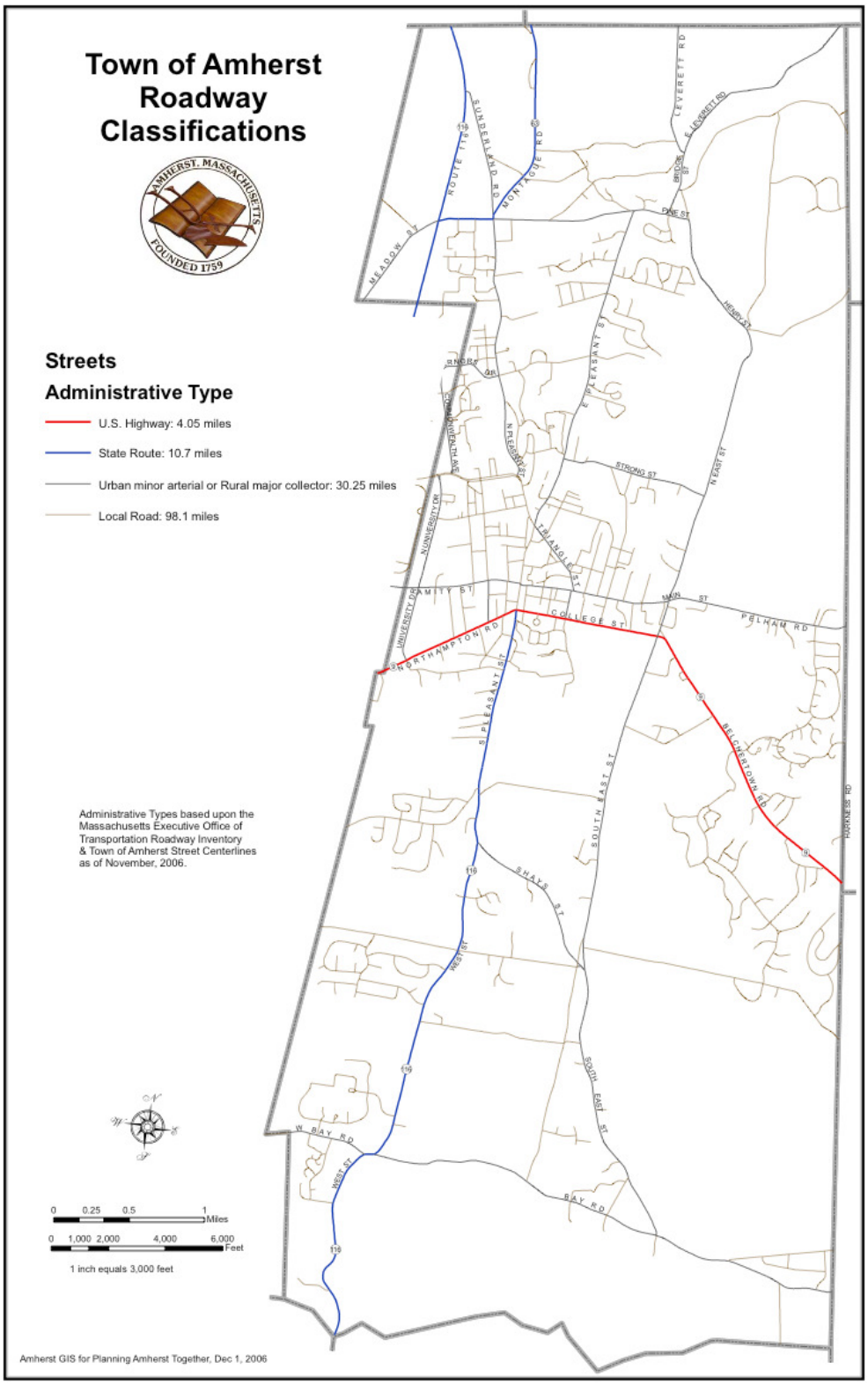
Traffic Calming – Traffic calming measures that improve safety and balance the use of travel corridors between private vehicles, public transit, bicyclists, and pedestrians throughout the community is an important issue in Amherst. There are many traffic calming methods and devices that can be used by the Town to address this issue such as roundabouts, semi-diverters, neck-downs, corner radii treatments, diagonal diverters, and others. As mentioned above, the DPW is working toward developing traffic calming measures for neighborhoods that could eventually be adopted into local land use regulations, public infrastructure standards, and design guidelines.

Transportation Costs – The cost of transportation related improvements needed and desired in Amherst is a significant issue. These types of construction projects and maintenance programs are typically expensive with limited funds available through Chapter 90, PVTA, regional school transportation funding, local taxes, and through limited state programs (such as PWED). The Town will have to carefully weigh the transportation priorities and aggressively pursue potential funding sources that may be available for carrying out these projects.

MAP 9.1: TOWN OF AMHERST ROADWAY OWNERSHIP

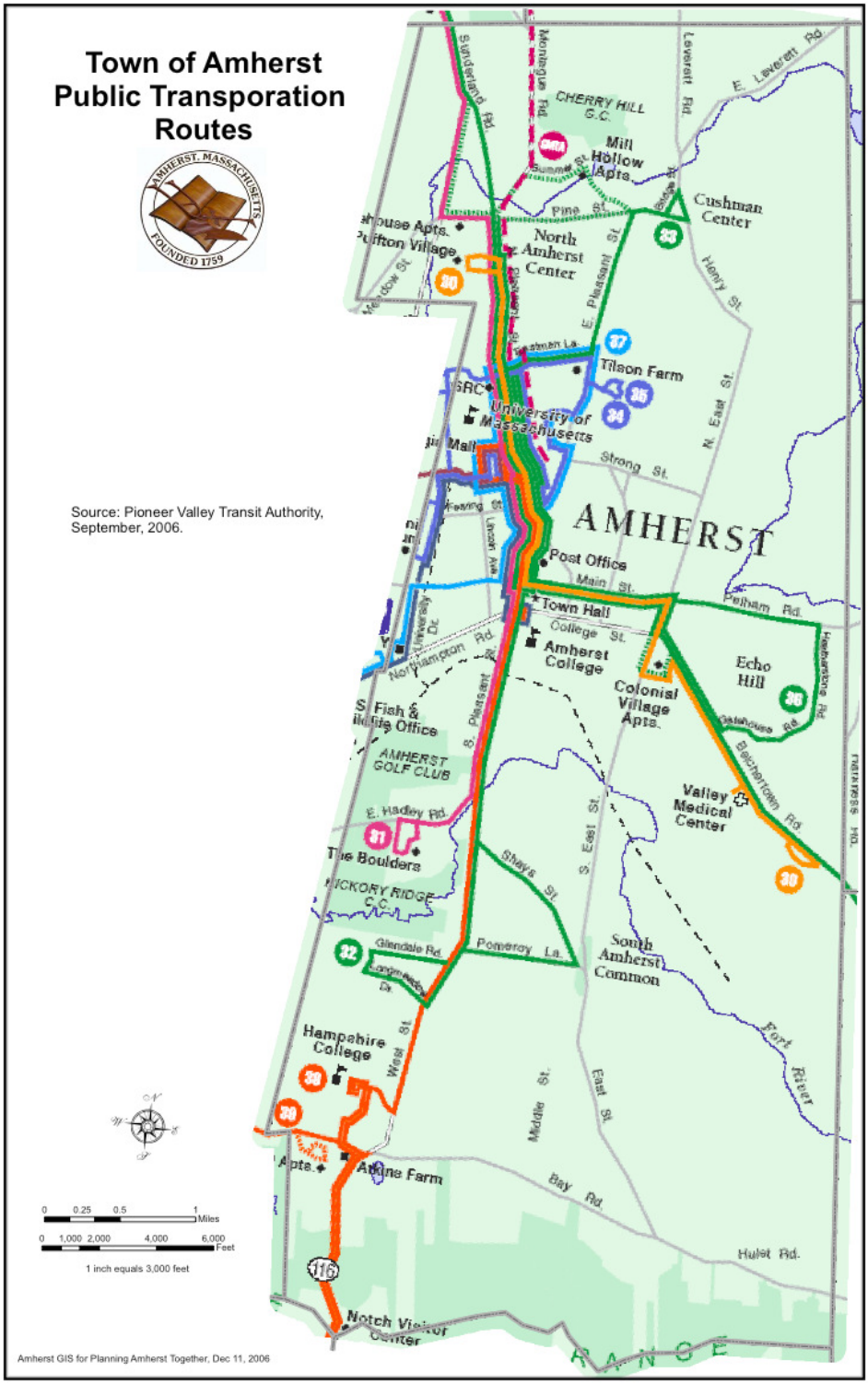


MAP 9.2: TOWN OF AMHERST ROADWAY CLASSIFICATION

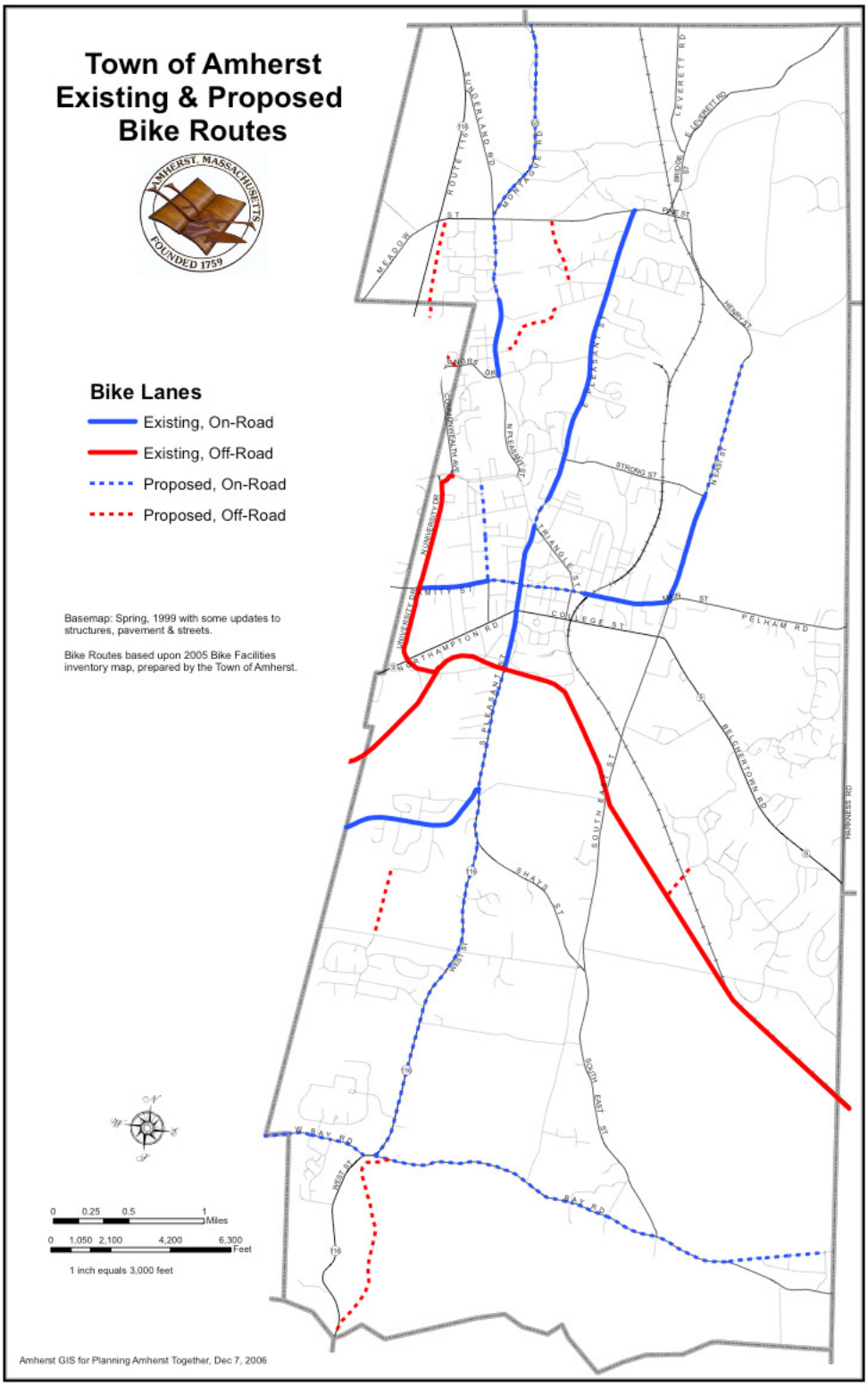


MAP 9.3: TOWN OF AMHERST PUBLIC TRANSPORTATION ROUTES

More detailed maps that encompass the entire Pioneer Valley Transit Authority service area can be found at www.pvta.com.



MAP 9.4: TOWN OF AMHERST EXISTING & PROPOSED BIKE ROUTES



MAP 9.5: TOWN OF AMHERST PEDESTRIAN PATHS & TRAILS